

Appl. No. 09/736,345  
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Reply to Office Action of May 20, 2003

### AMENDMENTS TO THE CLAIMS

(1. (Canceled))

2. (Withdrawn) An optimal method to organize accounting data in the central memory of a computer:

- using a doubly linked data structure containing a LINKTRANS field for the accounting trial balance data;
- using a distinct list of pointers to link the data structure element of the trial balance;
- keeping a direction field in the trial balance data structure to determine the debit or credit sign of the account for the financial statement report and to identify control accounts for the optimization process of the transaction structure;
- using a doubly linked data structure containing a linetype field for the financial statements data;
- using a distinct list of pointers to link the financial statements data structure element;
- using sub-lists of trial balance structure element pointers to group the accounts into financial statement items;
- using sub-lists of financial statement structure element pointers to group the financial statement items into totals;
- using one doubly linked data structure for the accounting transactions containing different types of transactions identified by the journal field;
- keeping the amounts in only positive numbers in the transaction structure, determining their sign for total calculation via a decision table according to the journal field, the linkchart and/or the linkbank field;
- keeping the transaction date in Julian format in the transaction structure;
- using a LINK vector to link the transaction structure elements of the trial balance structure elements and to save the data of the financial statements;
- keeping a display structure line for each transactions data structure element;
- keeping in the transaction structure elements the corresponding display structure line pointer;

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keeping in the display structure line the corresponding transaction structure element pointer;

linking each transaction structure element to the trial balance structure elements with a sub-list of display structure line pointers according to the linkchart and/or the linkbank field of the transactions data structure and the LINKTRANS field;

adding a new element to a data structure with an insertion algorithm;

adding simply a temporary element at the end of a list before it is displayed on the screen to permit the insertion of a new element at the end of the list, by the user, with a data entry screen;

removing an element from a data structure with a destruction algorithm.

3. (Withdrawn) A method to generate reports using display structure lines and linking its elements by creating distinct list of display structure line pointers:
- building trial balance reports according to the trial balance data structure;
  - building financial statement reports according to the financial statement data structure;
  - calculating balances considering that accounting amounts, debit and credit, are always accumulated, never subtracted, and adding these amounts according to the accounting equation to get the resulting balances and determining the sign of the amounts for total calculation via a decision table according to the journal field, the linkchart and/or the linkbank field;
  - using the direction field in the trial balance data structure to determine the debit or credit sign of the account for the financial statement report;
  - using the sub-lists of trial balance structure element pointers grouping the accounts into financial statement items to build the detail of the financial statement item, that is, the accounts and their balances, grouped in the item, and to incorporate this detail in the financial statement report;
  - building the detail report of an account balance appearing on the first level displaying the transactions affecting the account balance through the sub-list of display structure line pointers linking each transaction structure element to the trial balance structure elements;

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- building the detail report of a document appearing on the second level, linking all the display line structure of the transactions which compose this document;
- building rapidly any type of reports containing transactions just by building distinct lists of pointers;
- building rapidly these reports for any selected period of date comparing the Julian date field of the transaction structure data;
- modifying easily the display lines according to the transactions report request and reinitializing it rapidly using the transaction data structure;
- building the distinct lists of pointers to provide sorted presentation without the need to perform any sorting;
- building the distinct lists of pointers to group the transactions by allocation account without the need to perform any sorting, where the transaction structure has been optimized;
- building the distinct lists of pointers to combine inflow and outflow transactions in one report to use the reconciliation module, or any other transactions report; inserting a preinitialized display line to the linked list to get, in a simple way, a formfeed at the printing;
- using a new universal algorithm to add page headers and formfeed to any report; permitting the display of the reports, with the display module, before printing it.
4. (Withdrawn) A new universal algorithm to add page headers and formfeed to any report: incrementing the current element pointer before testing the line counter.
5. (Withdrawn) A method for displaying any data structure doubly linked by a distinct list of pointers, and for manipulating this display by modifying directly the video RAM (not using existing subroutines):
- manipulating from top to bottom or bottom to top;
  - permitting partial display of the data structure lines, that is, the number of characters to be displayed can vary and the first character displayed can be different from the first character of the data structure line;
  - manipulating this partial display from right to left and left to right;

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performing any change of one line (or one column) of the display working within the video RAM, making these changes very fast;  
enabling the user to select an element; enabling the user to do successive selection;  
enabling the user to select screen color with the color selection module using one rainbow of colors for the foreground and one for the background or, using a matrix of all possible choices and modifying the byte for the character attribute in the video RAM;  
enabling the user to get a calendar while consulting the display; enabling the user to get a calculator while consulting the display;  
enabling the user to get a tax calculation module while consulting the display.

6. (Withdrawn) A method for printing reports on any printer:  
using a conversion vector to convert the ASCII code of all characters to print within ASCII codes 32 to 126, standard to all printers;  
eliminating the need for an installation step for the printer;  
enabling the user to initialize this conversion vector for specific printers;  
permitting partial printing according to a partial display.

7. (Withdrawn) A universal accounting reconciliation method which, with its calculation unit, displays a theoretical balance throughout the process of checking the transactions, avoiding the need to print the reconciliation report to know if the balance of the account in the books has been reconciliated successfully and avoiding the need to go back to the checking process if not.

8. (Withdrawn) An insertion algorithm adding a new element to a doubly linked data structure.

9. (Withdrawn) A destruction algorithm removing an element to a doubly linked data structure.

10. (Withdrawn) A method to get dates from the data entry screen:  
displaying a default date;

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enabling the user to modify each portion of an input date field with the keys plus (+) or minus (-) or with numbers;  
limiting the change of the year with the keys plus (+) or minus (-) in cases where the year portion of the date does not include the millennium, to assure the change to the right millennium;  
enabling the user to get a calendar by pressing the key '.', which is the only key on the numerical keyboard not used in the input date field, and to select a date to transfer in the input field date.

11. (Withdrawn) A method to get amounts from the data entry screen:  
grouping the numbers by thousands;  
enabling the user to get a calculator by pressing the key '+' and to transfer the result of calculations in the input amount field;  
enabling the user to get a tax calculation module by pressing the key '\*' and to transfer the results of calculations in the input amount field.

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12. (New) A computer implemented method for building financial statements from accounting data from an accounting system capable of producing a trial balance, the method comprising:

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receiving accounting data from an accounting system, the accounting data including trial balance data having a number of accounts and respective balances;  
grouping the accounts into one or more financial statement items, wherein each account is associated with only one financial statement item within any one financial statement;  
computing a financial statement item balance for each financial statement item based on the associated accounts and their respective balances;  
grouping the financial statement items into one or more totals, wherein each total is based on preceding financial statement item balances; and  
providing a financial statement that includes each financial statement item and its respective balance.

13. (New) The method of claim 12 further comprising:

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providing a first level of detail for a user selected financial statement item, the first level of detail including any accounts and respective account balances grouped into that financial statement item.

14. (New) The method of claim 13 wherein each account is assigned an accounting direction, and an account balance is provided in parentheses if its direction is opposite the assigned accounting direction of that account.

15. (New) The method of claim 13 further comprising:  
providing a second level of detail for a user selected account included in the selected financial statement item, the second level of detail including an account balance and transactions associated with the account balance.

16. (New) The method of claim 15 wherein providing the second level of detail includes providing for at least one of form feeds and headers as required.

17. (New) The method of claim 15 further comprising:  
providing a third level of detail for a user selected transaction included in the selected account, the third level of detail including at least one debited account and a corresponding credited account associated with the selected transaction, wherein a transaction is associated with more than one account in accordance with the double entry accounting principle.

18. (New) The method of claim 12 wherein each financial statement item is assigned an accounting direction, and a financial statement item balance is provided in parentheses if its direction is opposite the assigned accounting direction of that financial statement item.

19. (New) The method of claim 18 wherein the assigned accounting direction of a financial statement item is based on a direction associated with a first grouped account of the financial statement item.

20. (New) The method of claim 12 wherein receiving accounting data from an accounting system further comprises at least one of:

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reading trial balance data stored on a computer readable medium by the accounting system; and

reading accounting transactions stored on a computer readable medium by the accounting system.

21. (New) The method of claim 12 wherein the method is integrated into accounting software.
22. (New) The method of claim 12 wherein the method is integrated into at least one of word processor software, spreadsheet software, and editing software.
23. (New) The method of claim 12 wherein providing a financial statement includes displaying detail associated with any financial statement item balance to a user.
24. (New) The method of claim 12 further comprising:  
dynamically allocating memory spaces for a plurality of doubly linked data structures for storing elements of the accounting data, thereby enabling reading, organizing, and manipulation of the accounting data of an accounting system.
25. (New) The method of claim 12 further comprising:  
dynamically allocating memory spaces for a trial balance data structure for storing the accounts of the accounting data, and linking elements of the trial balance data structure with a doubly linked list of pointers thereby allowing sub-lists to group the accounts into financial statement items; and  
dynamically allocating memory spaces for a financial statement data structure for storing the financial statement items, and linking elements of the financial statement data structure with a doubly linked list of pointers thereby allowing sub-lists to group financial statement items into totals.
26. (New) The method of claim 25 wherein dynamically allocating memory spaces for a trial balance data structure further includes storing trial balance data into the trial balance data structure, the trial balance data structure including a LINKTRANS field for each account, the

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LINKTRANS field specifying an index of an associated pointer element in a LINK vector, each pointer element of the LINK vector indicating a memory address of a corresponding element in the trial balance data structure.

27. (New) The method of claim 25 wherein dynamically allocating memory spaces for a financial statement data structure further includes storing financial statement elements into the financial statement data structure, the financial statement data structure including a LINE type field for each element of the financial statement, each LINE type field specifying a type attributed to the corresponding financial statement element.

28. (New) The method of claim 27 wherein the types that can be specified in the LINE type field include a financial statement item type and a total type.

29. (New) The method of claim 25 wherein grouping the accounts into one or more financial statement items includes using doubly linked sub-lists of trial balance data structure pointers to group the accounts into financial statement items.

30. (New) The method of claim 25 wherein grouping the financial statement items into one or more totals includes using doubly linked sub-lists of financial statement data structure pointers to group the financial statement items into totals.

31. (New) The method of claim 25 further comprising:  
maintaining a direction field in the trial balance data structure for each account, the direction field specifying an accounting direction thereby enabling a user to identify a transaction amount's effect on the corresponding account balance.

32. (New) The method of claim 12 further comprising:  
dynamically allocating memory spaces for a doubly linked transaction data structure for storing transactions associated with the accounts, and linking the transactions to their respective accounts.



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33. (New) The method of claim 12 further comprising:

generating a report including form feeds and headers as required for each page of the report.

34. (New) The method of claim 32 wherein dynamically allocating memory spaces for a doubly linked transaction data structure further includes storing accounting transactions into the doubly linked transaction data structure, the transaction data structure including a LINKCHART field for each transaction line, the LINKCHART field specifying an index of an associated pointer in a LINK vector, each pointer of the LINK vector indicating a memory address of a corresponding element in the trial balance data structure.

35. (New) The method of claim 34 wherein an accounting direction for each accounting transaction amount is specified in a corresponding JOURNAL field included in the transaction data structure.

36. (New) The method of claim 34 wherein storing accounting transactions into the doubly linked transaction data structure further includes dynamically allocating memory spaces for display line structure elements, each display line structure element associated with a corresponding transaction data structure element.

37. (New) The method of claim 36 further comprising:

generating an account balance detail report using a list of display line structure pointers, thereby allowing sorted presentation of the transactions included in the account balance detail report.

38. (New) The method of claim 34 wherein storing accounting transactions into the doubly linked transaction data structure further includes linking each element of the transaction data structure to a corresponding element of a trial balance data structure with a doubly linked sub-list of display line structure pointers.

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39. (New) A computer implemented method for building financial statements from accounting data from an accounting system capable of producing a trial balance, the method comprising:

receiving accounting data from an accounting system, the accounting data including trial balance data having a number of accounts and respective balances;

grouping the accounts into one or more financial statement items, wherein each account is associated with only one financial statement item within any one financial statement;

computing a financial statement item balance for each financial statement item based on the associated accounts and their respective balances;

storing the financial statement items into a financial statement data structure, the financial statement data structure including a LINE type field for each line of the financial statement, each LINE type field specifying a type attributed to the corresponding financial statement line, with the types including a financial statement item type and a total type; and

providing a financial statement that includes each financial statement item and its respective balance.

40. (New) A computer implemented method for building financial statements from accounting data from an accounting system capable of producing a trial balance, the method comprising:

receiving accounting data from an accounting system, the accounting data including trial balance data having a number of accounts and respective balances;

dynamically allocating memory spaces for a trial balance data structure for storing the accounts of the accounting data, and linking elements of the trial balance data structure with a doubly linked list of pointers thereby allowing sub-lists to group the accounts into financial statement items;

computing a financial statement item balance for each financial statement item based on the associated accounts and their respective balances;

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dynamically allocating memory spaces for a financial statement data structure for storing the financial statement items, and linking elements of the financial statement data structure with a doubly linked list of pointers thereby allowing sub-lists to group financial statement items into totals; and providing a financial statement that includes each financial statement item and its respective balance.

41. (New) The method of claim 40 wherein dynamically allocating memory spaces for a trial balance data structure further includes storing trial balance data into the trial balance data structure, the trial balance data structure including a LINKTRANS field for each account, the LINKTRANS field specifying an index of an associated pointer element in a LINK vector, each pointer element of the LINK vector indicating a memory address of a corresponding element in the trial balance data structure.

42. (New) The method of claim 40 wherein dynamically allocating memory spaces for a financial statement data structure further includes storing financial statement items into the financial statement data structure, the financial statement data structure including a LINE type field for each line of the financial statement, each LINE type field specifying a type attributed to the corresponding financial statement line, the types including a financial statement item type and a total type.

43. (New) The method of claim 40 further comprising:  
dynamically allocating memory spaces for a doubly linked transaction data structure for storing transactions associated with the accounts, and linking the transactions to their respective accounts.

44. (New) The method of claim 43 further comprising:  
optimizing allocation of memory spaces for storing transactions included in the accounting data by storing a debited account and a corresponding credited account in a single element of the transaction data structure, as well as in an associated

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element of a display line data structure, thereby reducing the number of memory spaces that must be allocated for storing transactions.

45. (New) The method of claim 44 further comprising:  
maintaining a direction field in the trial balance data structure for each account, the direction field specifying which accounts have been identified as control accounts during the optimizing.

46. (New) The method of claim 44 further comprising:  
computing a theoretical balance during transaction checking processes; and  
displaying the theoretical balance throughout the transaction checking processes, thereby eliminating a need to print reconciliation reports during these transaction checking processes to establish whether an account balance has been reconciliated successfully.

47. (New) The method of claim 44 wherein dynamically allocating memory spaces for a doubly linked transaction data structure further includes storing accounting transactions into the doubly linked transaction data structure, the transaction data structure including a LINKBANK field for each transaction line, the LINKBANK field specifying an index of an associated pointer in a LINK vector, each pointer of the LINK vector indicating a memory address of a corresponding element in the trial balance data structure.

48. (New) A method for organizing accounting data in data structures used for building financial statements from accounting data from an accounting system capable of producing a trial balance, the method comprising:

dynamically allocating memory spaces for a trial balance data structure for storing accounts included in the accounting data, and linking elements of the trial balance data structure with a doubly linked list of pointers thereby allowing sub-lists to group the accounts into financial statement items;

dynamically allocating memory spaces for a financial statement data structure for storing the financial statement items, and linking elements of the financial statement data

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structure with a doubly linked list of pointers thereby allowing sub-lists to group financial statement items into totals; and storing financial statement items into the financial statement data structure, the financial statement data structure including a LINE type field for each line of the financial statement, each LINE type field specifying a type attributed to the corresponding financial statement line, the types including a financial statement item type and a total type.

49. (New) The method of claim 48 wherein dynamically allocating memory spaces for a trial balance data structure further includes storing trial balance data into the trial balance data structure, the trial balance data structure including a LINKTRANS field for each account, the LINKTRANS field specifying an index of an associated pointer element in a LINK vector, each pointer element of the LINK vector indicating a memory address of a corresponding element in the trial balance data structure.

50. (New) The method of claim 48 further comprising:  
dynamically allocating memory spaces for a doubly linked transaction data structure for storing transactions associated with the accounts, and linking the transactions to their respective accounts.

51. (New) The method of claim 50 wherein dynamically allocating memory spaces for a doubly linked transaction data structure further includes storing accounting transactions into the doubly linked transaction data structure, the data structure including a LINKCHART field for each transaction line, the LINKCHART field specifying an index of an associated pointer in a LINK vector, each pointer of the LINK vector indicating a memory address of a corresponding element in the trial balance data structure.

52. (New) A computer readable medium encoded with software, that when executed by a processor, causes the processor to carry out a process for building financial statements, the process comprising:

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receiving accounting data from an accounting system, the accounting data including trial balance data having a number of accounts and respective balances;  
grouping the accounts into one or more financial statement items, wherein each account is associated with only one financial statement item within any one financial statement;  
computing a financial statement item balance for each financial statement item based on the associated accounts and their respective balances;  
grouping the financial statement items into one or more totals, wherein each total is based on preceding financial statement item balances; and  
providing a financial statement that includes each financial statement item and its respective balance.

53. (New) A computer readable medium encoded with software, that when executed by a processor, causes the processor to carry out a process for building financial statements, the process comprising:

receiving accounting data from an accounting system, the accounting data including trial balance data having a number of accounts and respective balances;  
grouping the accounts into one or more financial statement items, wherein each account is associated with only one financial statement item within any one financial statement;  
computing a financial statement item balance for each financial statement item based on the associated accounts and their respective balances;  
storing the financial statement items into a financial statement data structure, the financial statement data structure including a LINE type field for each line of the financial statement, each LINE type field specifying a type attributed to the corresponding financial statement line, with the types including a financial statement item type and a total type; and  
providing a financial statement that includes each financial statement item and its respective balance.

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54. (New) A computer readable medium encoded with software, that when executed by a processor, causes the processor to carry out a process for building financial statements, the process comprising:

receiving accounting data from an accounting system, the accounting data including trial balance data having a number of accounts and respective balances;

dynamically allocating memory spaces for a trial balance data structure for storing the accounts of the accounting data, and linking elements of the trial balance data structure with a doubly linked list of pointers thereby allowing sub-lists to group the accounts into financial statement items;

computing a financial statement item balance for each financial statement item based on the associated accounts and their respective balances;

dynamically allocating memory spaces for a financial statement data structure for storing the financial statement items, and linking elements of the financial statement data structure with a doubly linked list of pointers thereby allowing sub-lists to group financial statement items into totals; and

providing a financial statement that includes each financial statement item and its respective balance.

55. (New) A computer readable medium encoded with software, that when executed by a processor, causes the processor to carry out a process for organizing accounting data in data structures used for building financial statements, the process comprising:

dynamically allocating memory spaces for a trial balance data structure for storing accounts included in the accounting data, and linking elements of the trial balance data structure with a doubly linked list of pointers thereby allowing sub-lists to group the accounts into financial statement items;

dynamically allocating memory spaces for a financial statement data structure for storing the financial statement items, and linking elements of the financial statement data structure with a doubly linked list of pointers thereby allowing sub-lists to group financial statement items into totals; and

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storing financial statement items into the financial statement data structure, the financial statement data structure including a LINE type field for each line of the financial statement, each LINE type field specifying a type attributed to the corresponding financial statement line, the types including a financial statement item type and a total type.

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